Melolobium involucratum (Fabaceae), a new combination for South Africa

C.H. Stirton
The Herbarium, Royal Botanic Gardens, Kew, Richmond

Psoralea involucrata Thunb., a rare legume endemic to the Cape, was transferred to *Argyrolobium* by William Harvey. Recent evidence suggests that this species is better placed in *Melolobium* in the tribe Crotalarieae and not in *Argyrolobium* (Genisteae). The affinities of this species are discussed and the new combination *Melolobium involucratum* (Thunb.) C.H. Stirton is made.
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Psoralea involucrata Thunb., 'n skaars peulplant endemies aan die Kaap, is deur William Harvey oorgeplaas na *Argyrolobium*. Die jongste getuienis is dat die spesie meer tuis hoort in *Melolobium* in die tribus Crotalarieae en nie in *Argyrolobium* (Genisteae) nie. Die verwantskappe van die spesie word bespreek en die nuwe kombinasie *Melolobium involucratum* (Thunb.) C.H. Stirton, gemaak.
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Introduction

Argyrolobium involucratum (Thunb.) Harv. is a rare Papilionoid legume restricted to the edge of a small section of the Roggeveld escarpment. Thunberg was the first person to collect specimens of this species and named it *Psoralea involucrata* Thunb. The species escaped detection for over 200 years until Goldblatt rediscovered it in 1976 (Dahlgren and Goldblatt 1981).

The identity of *Psoralea involucrata* remains doubtful. The species clearly does not belong to *Psoralea* (Psoraleeae), nor does it belong to *Argyrolobium* (Genisteae). Its natural home is some genus in the tribe Crotalarieae. Dahlgren and Goldblatt (1981) provided a useful discussion of its affinities and concluded that as it had 'some decidedly *Melolobium* like features . . ., its position in *Argyrolobium* is challenged'. I agree with their suggestion that it should be transferred to *Melolobium* and do so for a number of reasons.

A. involucratum is an anomalous species which I first encountered when I was revising *Polhillia* (Stirton 1986). It shares with that genus conduplicate leaflets and involucrate stipules. A cursory examination seemed to suggest that it also shared similar androecial, calyx and fruit structures. However, after having originally written up that account, to reluctantly include *A. involucratum* in *Polhillia*, I decided, based on new chemical evidence (Stirton 1986), to re-examine this species with respect to *Melolobium* (Table 1).

If one ignores the distinctive stipules of *A. involucratum*

Table 1 Comparative differences between *Polhillia* and *A. involucratum*

Characters	*Polhillia*	*Argyrolobium involucratum*
1. Leaflets	sericeous, acute	glabrous, spiculate
2. Stipules	sericeous	glabrous
3. Inflorescences	1 – 2(3)-flowered	4 – 6-flowered
4. Corolla	yellow	pale yellow becoming pink or purple
5. Standard	very broadly ovate; claw narrow, $\frac{1}{3}$ length of standard	broadly ovate; claw broad, $\frac{1}{2}$ the length of the standard
6. Length of terminal anther	equal to other basifixed anthers	shorter than basifixed anthers but longer than dorsifixed anthers
7. Style	gently forward sloping	flexed, upright
8. Fruit	indehiscent, eglandular	dehiscent, glandular
9. Orientation of seeds	vertical	oblique

C.H. Stirton
B.A. Krukoff Botanist, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, U.K.

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its appearance is far more typical of *Melolobium* and *Dichilus* than of *Polhillia*. The unusually connate stipules fused to the petiole represent, I feel, an extension of a trend already apparent in *Melolobium* which shows a series of decreasing petiole length associated with an increasing size of the stipules. The characteristic lobing of the free stipules in *Melolobium* is sometimes so great that they virtually sheath the stem. The fusion of such stipules is a logical possibility. Involucrate stipules in *Polhillia* and *A. involucratum* could be convergent structures. The cleft calyx of *A. involucratum* is closer to that of some *Dichilus* species than to *Polhillia*, but the presence of glands on the fruit, the oblique orientation of the seeds in the fruit and finally its north-westerly geographical distribution all lead me to believe that *A. involucratum* is an unusual species of *Melolobium*. *Dichilus* is essentially an eastern genus. *Polhillia* is restricted to the south-western and southern Cape, whereas *Melolobium* is predominantly distributed in the central and eastern parts of the country.

Melolobium involucratum *(Harv.) C.H. Stirton*, comb. nov.

Psoralea involucrata Thunb., Prodr. 136 (1800); Fl. Cap. 607 (1823).
Argyrolobium involucratum (Thunb.) Harv., Fl. Cap. 2: 75 (1862).
Genista involucrata (Thunb.) Briq., Etud. Cytises Alp. Morit. 120 (1894). Type: Cape Province — Without precise locality, *Thunberg s.n.* (UPS-Thunb. 17575, lectotypus! here designated).
Icon: Dahlgren and Goldblatt (1981), Figure 1.

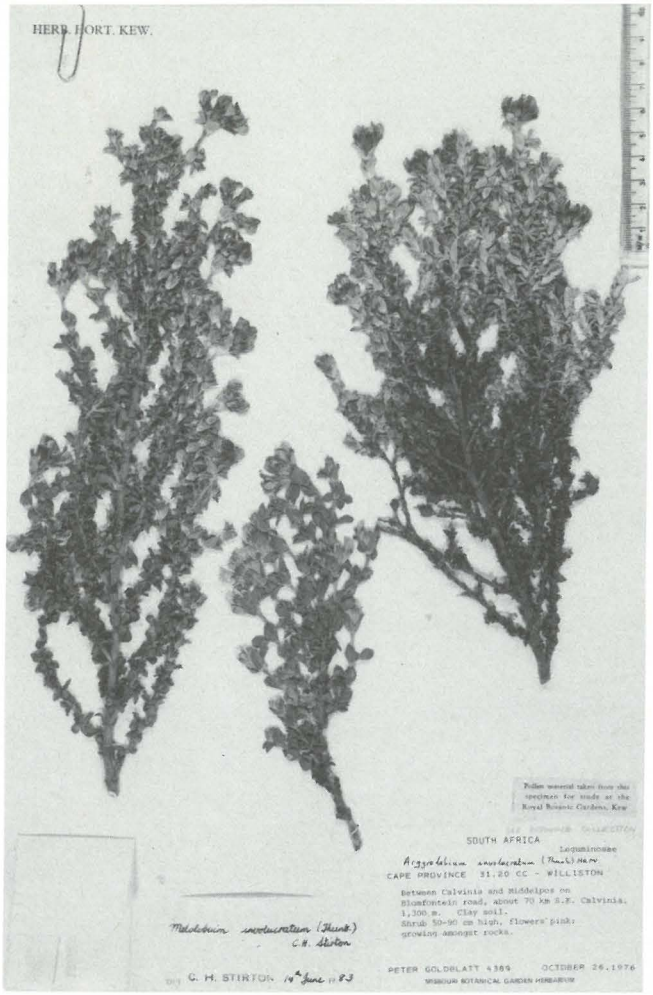

Figure 1 First collection of *Melolobium involucratum* (*Goldblatt 4389*) since Thunberg collected it over 200 years previously.

Erect or ascending shrub up to 1 m tall. *Branches* rigid, densely and shortly villous, becoming fissured with age. *Leaves* digitately trifoliolate, shortly petiolate, appearing to rise at the edge of the stipular sheath. *Stipules* increasing in size from 3 – 5 mm long, 3 – 4 mm wide at the base of short lateral shoots but up to 11 mm long and 8 mm wide near the apex of such shoots, adnate to the petiole, ovate becoming broadly ovate, glabrous, involucrate, 2-cleft with one half shortly bifid, light green, paler on lower parts, glabrous; petiole 0,2 – 1,0 mm long (free part), villous. *Leaflets* 2 – 7 mm long, 1,5 – 4,0 mm wide, obovate, equal, base cuneate, apex acute to cuspidate, conduplicate, glabrous, pale green. *Inflorescence* pseudo-umbellate, terminal on short lateral shoots; 4 – 6-flowered; pedicels 3 – 6 mm long, elongating in the fruiting stage, villous, merging gradually into the calyx, hidden by the sheath-like stipular involucre of the uppermost leaf (subtended by a longer internode than the previous ones). *Flowers* 10 – 12 mm long, fresh flowers pale yellow flushed with pink or purple on the back of the standard and the distal parts of the wings but becoming more pink or purple with age. *Calyx* 6 – 8 mm long, tube 4 – 5 mm long; vexillar keel lobes mutually coherent to a tripartite lip; teeth much narrower and 1 mm shorter than the vexillar teeth, but with the keel tooth narrowest; finely pubescent on inner face of the teeth and sparsely silky on outer face of the teeth, elsewhere glabrous; pale yellowish on the basal part and more or less purplish on the teeth and distal parts of the tube in dry state. *Standard* 11 – 12 mm long, 7,0 – 7,5 mm wide, claw 4 mm long; blade ovate, apex obtuse, glabrous except along the midrib of the back, auricles and appendage absent. *Wing petals* 11 – 12 mm long, 3,6 – 4,0 mm wide, claw 4 mm long; apex rounded; auricle scarcely developed, rounded; sculpturing upper basal and upper central, angled upwards, intracostal in three uneven rows, lunullate distally, becoming coarser basally; outer face with a medial line of scattered hairs. *Keel petals* 11,5 – 12,0 mm long, 3,5 – 4,0 mm wide, claw 5,0 – 5,3 mm long; apex obtuse, pouched along the midline near the base of the blade; pubescent all over but more so on the lower central and lower distal parts, auriculate. *Androecium* 12 mm long, stamens sheathed, slit on the adaxial side; anthers dimorphic, with 4 linear-oblong basifixed anthers, (1,0 – 1,2 mm long), alternating with 5 ovate dorsifixed anthers (0,7 – 0,8 mm long), median anther slightly longer than the short anthers. *Pistil* 11,5 mm long; ovary 7 mm long, linear, densely pubescent, subsessile, merging into the upflexed style; ovules 6 – 7; style glabrous beyond point of flexure, height of curvature, 3,0 – 3,5 mm; stigma small, apical, capitate. *Fruit* 28 – 34 mm long, 4,5 – 5,0 mm wide, narrowly oblong, slightly curved, densely villous, glandular, dehiscent, somewhat constricted between the oblique seeds. *Seeds* 2,5 – 2,6 mm long, 1,9 – 2,3 mm wide, oblong-ovate; mottled, sheen dull, hilum ovate, recessed, situated on the short side, rim aril visible, regular, funicular remnant visible; micropyle hidden. Figure 1.

Specimens examined

— **3119** (Calvinia): At the entrance to the farm Blomfontein (– DD), 27-10-1983, *Snijman 788 b* (NBG); 7-1-1986, *Stirton 10999* (K, NBG, PRE).
— **3120** (Williston): 64 km from Calvinia on Blomfontein road to Middelpos (– CC), 4-6-1980, *Goldblatt 5531* (K, MO); 68 km from Calvinia on Blomfontein road to Middelpos (– CC), 15-2-1976, *Goldblatt 4614* (K, MO, NBG); ± 70 km S.E. of Calvinia on Blomfontein road to Middelpos, 26-10-1976, *Goldblatt 4389* (K, MO, NBG).
Locality unknown: *Thunberg s.n.* (UPS-THUNB).

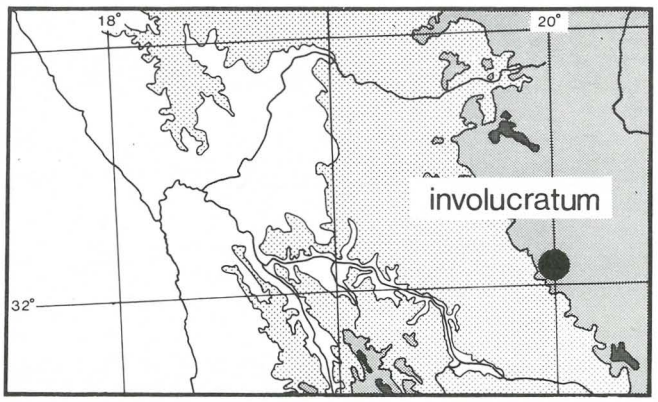

Figure 2 Known distribution of *Melolobium involucratum* (•).

Distribution and biology

Melolobium involucratum is endemic to a small area near Middelpos, S.E. of Calvinia and occurs in Acocks' veld type 43, Mountain Renosterbosveld. Plants were found growing in clayey soil amongst rocks at altitudes of *ca.* 1300 m (Figure 2).

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References

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